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## ATOMIC WEAPONS AND AMERICAN POLICY

*By J. Robert Oppenheimer*

IT IS possible that in the large light of history, if indeed there is to be history, the atomic bomb will appear not very different than in the bright light of the first atomic explosion. Partly because of the mood of the time, partly because of a very clear prevision of what the technical developments would be, we had the impression that this might mark, not merely the end of a great and terrible war, but the end of such wars for mankind.

Two years later Colonel Stimson was to write in *Foreign Affairs*, "The riven atom, uncontrolled, can be only a growing menace to us all. . . ." In the same paragraph he wrote, "Lasting peace and freedom cannot be achieved until the world finds a way toward the necessary government of the whole."<sup>1</sup> Earlier, shortly after the war's end, the Government of the United States had put forward some modest suggestions, responsive to these views, for dealing with the atom in a friendly, open, coöperative way. We need not argue as to whether these proposals were still-born. They have been very dead a long, long time, to the surprise of only a few. Openness, friendliness and coöperation did not seem to be what the Soviet Government most prized on this earth.

It should not be beyond human ingenuity for us to devise less friendly proposals. We need not here detail the many reasons why they have not been put forward, why it has appeared irrelevant and grotesque to do so. These reasons range from the special difficulties of all negotiation with the Soviet Union, through the peculiar obstacles presented by the programmatic hostility and the institutionalized secretiveness of Communist countries, to what may be regarded as the more normal and familiar difficulties of devising instruments for the regulation of armaments in a world without prospect of political settlement.

<sup>1</sup> "The Challenge to Americans," by Henry L. Stimson. *Foreign Affairs*, October 1947.

Instead we came to grips, or began to come to grips, with the massive evidences of Soviet hostility and the growing evidences of Soviet power, and with the many almost inevitable, yet often tragic, elements of weakness, disharmony and disunity in what we have learned to call the Free World. In these preoccupations—one wholly negative, and one largely positive though very difficult—the atom, too, was given a simple rôle, and the policy followed was a fairly simple one. The rôle was to be one ingredient of a shield: a shield composed also in part of the great industrial power of America, and in part of the military and, even more, the political weaknesses of the Soviet Union. The rule for the atom was: "Let us keep ahead. Let us be sure that we are ahead of the enemy."

Today it would seem that, however necessary these considerations and these policies may be, they are no longer nearly sufficient. The reason for that one can see when one looks at the character of the arms race. The reason for that one can see when one compares the time-scale of atomic developments here and abroad with the probable time-scale of deep political changes in the world.

It is easy to say "let us look at the arms race." I must tell about it without communicating anything. I must reveal its nature without revealing anything; and this I propose to do.

There are three countries embarked on this race: The United Kingdom—and of that we need to note only that it is unfortunate that so talented and hard-pressed a country, so close to us in history and tradition, should be doing all this separately from us—ourselves, and the U.S.S.R.

As for the U.S.S.R., it has recently been said officially, and thus may be repeated with official sanction, that it has produced three atomic explosions, and is producing fissionable material in substantial quantities. I should like to present the evidence for this; I cannot. We do need one word of warning: this is evidence which could well be evidence of what the Government of the U.S.S.R. wants us to think rather than evidence of what is true. I may, however, record my own casual, perhaps too rough guess as to how the U.S.S.R. stands in relation to us in the field of atomic munitions. This does not refer at all to other elements of armament. I think that the U.S.S.R. is about four years behind us. And I think that the scale of its operations is not as big as ours was four years ago. It may be something like half as big as ours

then was. This is consistent with the facts known to us. It has not been proven by them, by any means.

This sounds comfortably reassuring. It sounds as though the job of keeping ahead were being satisfactorily accomplished. But in order to assay what it means, we have to know something of what it is that they are four years behind, how fast the situation is likely to change, and what it means to be half as big as we are.

When Hiroshima was bombed there was a single plane. There was no air opposition. We flew straight in at medium height, at rather low speed, over the city of Hiroshima; we dropped one bomb with an energy release the equivalent of about fifteen thousand tons of TNT. It killed more than seventy thousand people and produced a comparable number of casualties; it largely destroyed a medium-sized city. That we had in mind. But we also had in mind, and we said, that it was not a question of one bomb. It would become a question of ten, and then one hundred, and then a thousand, and then ten thousand, and then maybe one hundred thousand. We knew—or, rather, we did not know, but we had very good reason to think—that it was not a question of ten thousand tons but of one hundred thousand and then a million tons, and then ten million tons and then maybe one hundred million tons.

We knew that these munitions could be adapted, not merely to a slow medium bomber operating where we had almost complete air supremacy, but to methods of delivery more modern, more flexible, harder to intercept, and more suitable for combat as it might be encountered today.

Today all of this is in train. It is my opinion that we should all know—not precisely, but quantitatively and, above all, authoritatively—where we stand in these matters; that we should all have a good idea of how rapidly the situation has changed, and of where we may stand, let us say, three, four, or five years ahead, which is about as far as one can see. I shall revert to the reasons why I think it important that we all know of these matters. I cannot write of them.

What I can say is this: I have never discussed these prospects candidly with any responsible group, whether scientists or statesmen, whether citizens or officers of the Government, with any group that could steadily look at the facts, that did not come away with a great sense of anxiety and somberness at what they saw. The very least we can say is that, looking ten years ahead, it

is likely to be small comfort that the Soviet Union is four years behind us, and small comfort that they are only about half as big as we are. The very least we can conclude is that our twenty-thousandth bomb, useful as it may be in filling the vast munitions pipelines of a great war, will not in any deep strategic sense offset their two-thousandth. The very least we can say is that, as Mr. Gordon Dean has emphasized, there will come a time when, even from the narrowest technical point of view, the art of delivery and the art of defense will have a much higher military relevance than supremacy in the atomic munitions field itself.

There are other aspects of the arms race; though they may be well-known, they are worth mentioning. We developed the atomic bomb under the stimulus of the fear that the Germans might be at it. We deliberated at length on the use of the bomb against Japan; indeed it was Colonel Stimson who initiated and presided over these thorough deliberations. We decided that it should be used. We have greatly developed and greatly increased our atomic activities. This growth, though natural technically, is not inevitable. If the Congress had appropriated no money, it would not have occurred. We have made our decision to push our stockpiles and the power of our weapons. We have from the first maintained that we should be free to use these weapons; and it is generally known we plan to use them. It is also generally known that one ingredient of this plan is a rather rigid commitment to their use in a very massive, initial, unremitting strategic assault on the enemy.

This arms race has other characteristics. There has been relatively little done to secure our defense against the atom; and in the far more tragic and difficult problem of defending our Allies in Europe still less has been done. This does not promise to be an easy problem.

Atomic weapons are not just one element of an arsenal that we hope may deter the Soviet Government, or just one of the means we think of for putting an end to a war, once started. It is, perhaps, almost the only military measure that anyone has in mind to prevent, let us say, a great battle in Europe from being a continuing, agonizing, large-scale Korea. It is the only military instrument which brings the Soviet Union and the United States into contact—a most uncomfortable and dangerous contact—with one another.

Atomic weapons, as everyone knows, have been incorporated

in the plans for the defense of Europe. They have been developed for many tactical military uses, as in the anti-submarine campaign, the air campaign, and the ground campaign in the European theater; and these potential applications continue to ramify and multiply. Yet the Europeans are rather in ignorance what these weapons are, how many there may be, how they will be used and what they will do. It thus needs to be remarked, as we shall need to remark again, that for Europe the atomic weapon is both a much needed hope of effective defense and a terrible immediate peril, greater even than for this country.

These are some of the peculiarities of this arms race, marked for us by a very great rigidity of policy, and a terrifyingly rapid accumulation, probably on both sides, of a deadly munition. When we think of the terms in which we in this country tend to talk of the future, the somberness with which thoughtful men leave a discussion of the subject is not wholly ununderstandable. There are two things that everyone would like to see happen; but few people, if any, confidently believe that they will happen soon. One is a prompt, a happily prompt reform or collapse of the enemy. One is a regulation of armaments as part of a general political settlement—an acceptable, hopeful, honorable and humane settlement to which we could be a party.

There is nothing repugnant in these prospects; but they may not appear to be very likely in the near future. Most of us, and almost all Europeans, appear to regard the outbreak of war in this near future as a disaster. Thus the prevailing view is that we are probably faced with a long period of cold war in which conflict, tension and armaments are to be with us. The trouble then is just this: during this period the atomic clock ticks faster and faster. We may anticipate a state of affairs in which two Great Powers will each be in a position to put an end to the civilization and life of the other, though not without risking its own. We may be likened to two scorpions in a bottle, each capable of killing the other, but only at the risk of his own life.

This prospect does not tend to make for serenity; and the basic fact that needs to be communicated is that the time in which this will happen is short, compared to the time in which reasonable men may have some confidence in a reasonable amelioration or even alteration of the great political troubles of our time.

In this prospect, surely, we shall need all the help and wisdom and resourcefulness we can muster. This, in all probability, is a

very tough fix. There are three things we need to remember, three things that are very sharp. It is perilous to forget any one of them. One is the hostility and the power of the Soviet. Another is the touch of weakness—the need for unity, the need for some stability, the need for armed strength on the part of our friends in the Free World. And the third is the increasing peril of the atom. The problem is straightforward, if not easy, if we forget the last. It is easy if we forget the first. It is hard if we remember all three. But they are all there.

We need the greatest attainable freedom of action. We need strength to be able to ask whether our plans for the use of the atom are, all things considered, right or wrong. We need the freedom of action necessary—and we do not have it today—to be able to negotiate, should an opportunity for that at some future time appear.

Much will be needed to bring us this freedom of action. Some of it we cannot write about, because it has not occurred to us. Some we cannot write about because it would not be proper for anything but official discussion. An example may be the question of whether, under what circumstances, in what manner, and with what purpose to communicate with the Soviet Government on this and related problems.

But there are three reforms which seem so obvious, so important, so sure to be salutary that I should like to discuss them briefly. One has to do with making available to ourselves, in this tough time, the inherent resources of a country like ours and a government like ours. These resources are not available today. The second has to do with making available the resources of a coalition of governments, bound together in an alliance, yet at the moment foreclosed from discussing one of the principal factors that affects the destiny of the alliance and of all its members. The third has to do with taking measures to put off, to moderate, to reduce the dangers of which we have spoken. I shall deal with each of these.

The first is candor—candor on the part of the officials of the United States Government to the officials, the representatives, the people of their country. We do not operate well when the important facts, the essential conditions, which limit and determine our choices are unknown. We do not operate well when they are known, in secrecy and in fear, only to a few men.

The general account of the atomic arms race that has been out-

lined here can, of course, be found in the public press, together with a great deal of detailed information, some true, and much largely false. This mass of published rumor, fact, press release and speculation could yield, upon analysis, a fairly solid core of truth; but as it stands, it is not the truth. The consequences of such ignorance may seem obvious; but we may recall two examples that illustrate well what they are.

It must be disturbing that an ex-President of the United States, who has been briefed on what we know about the Soviet atomic capability, can publicly call in doubt all the conclusions from the evidence. Perhaps this was primarily because it was all so secret that it could not be talked about, or thought about, or understood. It must be shocking when this doubt, so recently expressed, is compounded by two men, one of them a most distinguished scientist, who headed one of the great projects of the Manhattan District during the war, and one of them a brilliant officer, who was in over-all charge of the Manhattan District. These two men are not now employed by any agency of the Government concerned with these questions; therefore they did not have access to the evidence. Thus their advice is unavailing, their public counsel wrong.

A second example may illustrate further. A high officer of the Air Defense Command said—and this only a few months ago, in a most serious discussion of measures for the continental defense of the United States—that it was our policy to attempt to protect our striking force, but that it was not really our policy to attempt to protect this country, for that is so big a job that it would interfere with our retaliatory capabilities. Such follies can occur only when even the men who know the facts can find no one to talk to about them, when the facts are too secret for discussion, and thus for thought.

The political vitality of our country largely derives from two sources. One is the interplay, the conflict of opinion and debate, in many diverse and complex agencies, legislative and executive, which contribute to the making of policy. The other is a public opinion which is based on confidence that it knows the truth.

Today public opinion cannot exist in this field. No responsible person will hazard an opinion in a field where he believes that there is somebody else who knows the truth, and where he believes that he does not know it. It is true that there are and always will be, as long as we live in danger of war, secrets that it is



important to keep secret, at least for an appropriate period, if not for all time; some of these, and important ones, are in the field of atomic energy. But knowledge of the characteristics and probable effects of our atomic weapons, of—in rough terms—the numbers available, and of the changes that are likely to occur within the next years, this is not among the things to be kept secret. Nor is our general estimate of where the enemy stands.

Many arguments have been advanced against making public this basic information. Some of these arguments had merit in times past. One is that we might be giving vital information to the enemy. My own view is that the enemy has this information. It is available to anyone who will trouble to make an intelligence analysis of what has been published. Private citizens do not do this; but we must expect that the enemy does. It is largely available by other means as well. It is also my view that it is good for the peace of the world if the enemy knows these basic facts—very good indeed, and very dangerous if he does not.

There is another source of worry—that public knowledge of the situation might induce in this country a mood of despair, or a too ready acceptance of what is lightheartedly called preventive war. I believe that until we have looked this tiger in the eye, we shall be in the worst of all possible dangers, which is that we may back into him. More generally, I do not think a country like ours can in any real sense survive if we are afraid of our people.

As a first step, but a great one, we need the courage and the wisdom to make public at least what, in all reason, the enemy must now know: to describe in rough but authoritative and quantitative terms what the atomic armaments race is. It is not enough to say, as our government so often has, that we have made “substantial progress.” When the American people are responsibly informed, we may not have solved, but we shall have a new freedom to face, some of the tough problems that are before us.

There is also need for candor in our dealings with at least our major allies. The Japanese are exposed to atomic bombardment; and it may be very hard to develop adequate counter-measures. Space, that happy asset of the United States, is not an asset for Japan. It is not an asset for France. It is not an asset for England. There are in existence methods of delivery of atomic weapons which present an intractable problem of interception, and which are relevant for the small distances that characterize Europe. It

will be some time at least before they are relevant for intercontinental delivery. These countries will one day feel a terrible pinch, when the U.S.S.R. chooses to remind them of what it can do, and do very easily—not without suffering, but in a way that the Europeans themselves can little deter or deflect.

There have been arguments for technical collaboration with the United Kingdom and Canada; these have often appeared persuasive. There have been arguments for military collaboration with the NATO governments, and with the responsible commanders involved. General Bradley and General Collins both have spoken of this need, partly in order to explain to our allies that an atomic bomb will not do all things—that it has certain capabilities but it is not the whole answer. This is surely a precondition for effective planning, and for the successful defense of Europe.

Yet there are much more general reasons. We and our allies are in this long struggle together. What we do will affect the destiny of Europe; what is done there will affect ours; and we cannot operate wisely if a large half of the problem we have in common is not discussed in common. This does not mean that we should tie our hands. It means that we should inform and consult. This could make a healthy and perhaps very great change in our relations with Europe.

It is not clear that the situation even in the Far East would be wholly unaffected. It is troublesome to read that a principal reason that we should not use atomic weapons in Korea is that our allies would not like it. We need not argue here either that it is right or that it is wrong to use them there. In either case, our decisions should rest on far firmer ground than that other governments, who know less than we about the matter, should hold a different view than ours. It would be proper that the Japanese and the British and the many other governments immediately involved have a notion of what the issues really are.

Once, clearly, the problem of proper candor at home is faced—the problem of a more reasonable behavior toward our own people and our representatives and officials with regard to the atom—then the problem of dealing with our allies will be less troublesome. For it is pretty much the same information, the same rough set of facts, that both our people and our allies need to have and to understand.

The third point may seem even more obvious. I do not believe

—though of course we cannot today be certain—that we can take measures for the defense of our people, our lives, our institutions, our cities, which will in any real sense be a permanent solution to the problem of the atom. But that is no reason for not doing a little better than we are now doing.

The current view, as is well known, is not very optimistic. Not long ago General Vandenberg estimated that we might, with luck, intercept 20 or 30 percent of an enemy attack. That is not very reassuring, when one looks at numbers and casualties and at what it takes to destroy the heart and life of our country. For some months now, a highly-qualified panel, under the chairmanship of Dr. Mervin Kelly, appointed by Secretary Lovett and reporting now to Secretary Wilson, has studied the complex technical problems of continental defense. There are many technical developments that have not yet been applied in this field, and that could well be helpful. They are natural but substantial developments in munitions, in aircraft and in missiles, and in procedures for obtaining and analyzing information. Above all, there is the challenging problem of the effective use of space; there is space between the Soviet Union and the United States. This panel, it would appear, has been oppressed and troubled by the same over-all oppression which any group always finds when it touches seriously any part of the problem of the atom. Yet there is no doubt that it will recommend sensible ways in which we can proceed to try to defend our lives and our country.

Such measures will inevitably have many diverse meanings. They will mean, first of all, some delay in the imminence of the threat. They will mean a disincentive—a defensive deterrent—to the Soviet Union. They will mean that the time when the Soviet Union can be confident of destroying the productive power of America will be somewhat further off—very much further off than if we did nothing. They will mean, even to our allies, who are much more exposed and probably cannot be well defended, that the continued existence of a real and strong America will be a solid certainty which should discourage the outbreak of war.

A more effective defense could even be of great relevance should the time come for serious discussion of the regulation of armaments. There will have been by then a vast accumulation of materials for atomic weapons, and a troublesome margin of uncertainty with regard to its accounting—very troublesome indeed if we still live with vestiges of the suspicion, hostility and

secretiveness of the world of today. This will call for a very broad and robust regulation of armaments, in which existing forces and weapons are of a wholly different order than those required for the destruction of one great nation by another, in which steps of evasion will be either far too vast to conceal or far too small to have, in view of then existing measures of defense, a decisive strategic effect. Defense and regulation may thus be necessary complements. And here, too, all that we do effectively to contribute to our own immunity will be helpful in giving us some measure of an increased freedom of action.

These are three paths that we may take. None of them is a wholly new suggestion. They have, over the long years, been discussed; but they have not been acted on. In my opinion they have not, in any deep sense, been generally understood. We need to be clear that there will not be many great atomic wars for us, nor for our institutions. It is important that there not be one. We need to liberate our own great resources, to shape our destiny.